

1. A method of diagnosing an amyloidogenic disorder or a predisposition thereto in a mammal, comprising detecting a polypeptide aggregate in a supranuclear or cortical region of an ocular lens, wherein an increase in the amount of said aggregate compared to a normal control value indicates that said mammal is suffering from or is at risk of developing an amyloidogenic disorder.
2. The method of claim 1, wherein said polypeptide aggregate is detected by slit lamp examination.
3. The method of claim 1, wherein said polypeptide aggregate is detected by or Scheimpflug optics.
4. The method of claim 1, wherein said polypeptide aggregate is detected in a supranuclear region of said lens.
5. The method of claim 1, wherein said polypeptide aggregate is detected in a cortical region of said lens.
6. The method of claim 3, wherein said amyloidogenic disorder is selected from the group consisting of Alzheimer's Disease (AD), Familial AD, Sporadic AD, Creutzfeld-Jakob disease, variant Creutzfeld-Jakob disease, spongiform encephalopathies, a Prion disease, Parkinson's disease, Huntington's disease (and trinucleotide repeat diseases), amyotrophic lateral sclerosis, Down's Syndrome (Trisomy 21), Pick's Disease (Frontotemporal Dementia), Lewy Body Disease, Hallervorden-Spatz Disease, a synucleinopathy, neuronal intranuclear inclusion disease, a tauopathy, Pick's disease, corticobasal degeneration, hereditary frontotemporal dementia, and Guam amyotrophic lateral sclerosis/parkinsonism dementia complex.
7. The method of claim 1, wherein said amyloidogenic disorder is Alzheimer's Disease.
8. The method of claim 1, wherein said polypeptide aggregate comprises an amyloid protein.
9. The method of claim 1, wherein said amyloid protein is β -amyloid precursor protein (APP).
10. The method of claim 1, wherein said polypeptide aggregate comprises a prion protein or fragment thereof.
11. The method of claim 1, wherein said polypeptide aggregate comprises α -synuclein.
12. The method of claim 1, wherein said amyloid protein is A β or a fragment thereof.

13. The method of claim 1, wherein said amyloid protein is A β ₁₋₄₂.
14. The method of claim 14, wherein said polypeptide aggregate further comprises an ocular crystallin protein.
15. The method of claim 14, wherein said crystallin protein is selected from the group
5 consisting of an α crystallin, β crystallin, and γ crystallin.
16. The method of claim 1, wherein said aggregate is detected by quasi-elastic light scattering.
17. The method of claim 1, wherein said polypeptide aggregate is detected by a Raman spectroscopic technique.
- 10 18. The method of claim 1, wherein said polypeptide aggregate is localized in a cytosol of an lens cortical fiber cell.
19. A method of diagnosing an amyloidogenic disorder or a predisposition thereto in a mammal, comprising illuminating mammalian lens tissue with an excitation light beam and detecting scattered light emitted from said tissue, wherein an increase in scattered light emitted from a supranuclear or cortical region of an ocular lens indicates that said mammal is suffering from or is at risk of developing an amyloidogenic disorder.
- 15 20. The method of claim 19, wherein said method further comprising comparing an amount of scattered light from a nuclear region of said lens tissue, wherein an increase in the ratio of supranuclear or cortical scattering to nuclear scattering indicates that said mammal is suffering from or is at risk of developing an amyloidogenic disorder.
- 20 21. The method of claim 19, wherein said amyloidogenic disorder is selected from the group consisting of of Alzheimer's Disease (AD), Familial AD, Sporadic AD, Creutzfeld-Jakob disease, variant Creutzfeld-Jakob disease, spongiform encephalopathies, a Prion disease, Parkinson's disease, Huntington's disease (and trinucleotide repeat diseases), amyotrophic lateral sclerosis, Down's Syndrome (Trisomy 21), Pick's Disease (Frontotemporal Dementia), Lewy
25 Body Disease, Hallervorden-Spatz Disease, a synucleinopathy, neuronal intranuclear inclusion disease, a tauopathy, Pick's disease, corticobasal degeneration, hereditary frontotemporal dementia, and Guam amyotrophic lateral sclerosis/parkinsonism dementia complex.
22. The method of claim 19, wherein said amyloidogenic disorder is Alzheimer's Disease.
- 30 23. The method of claim 19, wherein said excitation light beam is a low wattage laser light.
24. The method of claim 19, wherein said excitation beam has a wavelength of 350-850 nm.



25 The method of claim 19, wherein said scattered light is detected by a fluorimeter.
26. Thee method of claim 19, wherein said scattered light is detected by quasi-elastic light scattering.

27. The method of claim 19, wherein said scattered light is detected by a Raman
5 spectroscopic technique.

28. A method of diagnosing an amyloidogenic disorder or a predisposition thereto in a mammal, comprising illuminating mammalian lens tissue with an excitation light beam and detecting scattered light emitted from said tissue to generate a subject-derived light emission signature and comparing said subject-derived signature to a known signature of an amyloid
10 protein, wherein a positive correlation between said subject-derived signature and said known signature indicates that said mammal is suffering from or is at risk of developing an amyloidogenic disorder.

29. The method of claim 28, wherein said amyloidogenic disorder is Alzheimer's Disease.

30. The method of claim 29, wherein said amyloid protein is A β .

31. A method of diagnosing neurodegenerative disorder or a predisposition thereto in a mammal, comprising detecting a polypeptide aggregate in a supranuclear or cortical region of an ocular lens, wherein an increase in the amount of said aggregate compared to a normal control value indicates that said mammal is suffering from or is at risk of developing a
15 neurodegenerative disorder

32. The method of claim 31, wherein said polypeptide aggregate is detected in said
20 supranuclear region of said lens.

33. The method of claim 32, wherein said polypeptide aggregate is detected in said cortical region of said lens.

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